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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,053	09/29/2003	Kurt Ulmer	200210246-02	2572

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EXAMINER

LEWIS, BEN

ART UNIT PAPER NUMBER

1745

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/674,053

Applicant(s)

ULMER ET AL.

Examiner

Ben Lewis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-27 is/are pending in the application.
- 4a) Of the above claim(s) 8-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/17/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

**Detailed Action**

1. The Applicant's amendment filed on August 17<sup>th</sup>, 2006 was received. Claims 1 and 5 were amended. Claim 2 was cancelled. Claims 8-27 were withdrawn.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action (issued on May 17<sup>th</sup>, 2006).

***Claim Rejections - 35 USC § 102***

The claim rejections under 35 U.S.C. 102(e) as anticipated by Pearson (U.S. Pub. No. 2004/0126635 A1) on claims 1-7 are withdrawn, because the independent claim 1 has been amended and claim 2 has been cancelled.

***Claim Rejections - 35 USC § 103***

3. Claims 1 and 2-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pearson (U.S. Pub. No. 2004/0126635 A1) in view of Fisher et al. (U.S. Pub No. 2003/0175566 A1).

With respect to claims 1,6 and 7, Pearson discloses an electric power plant with adjustable array of fuel cell systems wherein In step **134**, the control logic **64** determines an electrical configuration of series and/or parallel combinations of a

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number of fuel cell systems 10(1, 1)-10(M, N) to provide the desired power, voltage and/or current. In step 136, the control logic 64 operates a number of the redundant switches such as a transistor 60 (FIG. 2, only one shown) to electrically couple respective ones of fuel cell systems 10(1, 1)-10(M, N) into the determined electrical configuration (Paragraph 0099). Pearson et al also teach that one skilled in the art will also recognize that the two-dimensional array 68 permits the parallel coupling of fuel cell systems 10 to adjust the output power of the power supply system 50 by adjusting an output current. One skilled in the art will further recognize that the two-dimensional array 68 permits the series and parallel coupling of fuel cell systems 10 to adjust the output power of the power supply system 50 by adjusting both the output current and the output voltage (Paragraph 0078).

Pearson does not specifically teach a temperature measurement circuit. However, Fisher et al discloses fuel cell power systems and methods of operating fuel cell power systems (title) wherein, the depicted fuel cell power system 10 includes a fuel delivery system 40. Fuel delivery system 40 couples with a fuel supply 42 to supply fuel to fuel cell cartridges 14 (Paragraph 0047). Fisher et al teach also teach that following a start-up condition either inputted via interface, the control system 20 electively controls the switching device 32 to couple power bus 88 with positive terminal 90. The switching device 32 can comprise parallel MOSFET switches to selectively couple positive and negative terminals 90 and 92 to the cartridges 14. For example, the control system 20 may verify when an appropriate operational cartridge temperature has been reached, utilizing temperature sensor 62 (Paragraphs 0067-0068). Therefore it would have been

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obvious to one of ordinary skill in the art at the time the invention was made to incorporate the temperature sensor of Fisher et al into the fuel cell system of Pearson because Fisher et al teach that the control system **20** may verify when an appropriate operational cartridge temperature has been reached, utilizing temperature sensor **62** (Paragraphs 0067-0068).

With respect to claims 4, Pearson teaches that additionally or alternatively, the control logic **64** may receive an input from the user or operator via the user interface **66** which may comprise a set of user controls to set operating parameters such as power, voltage, and or current thresholds, to set desired parameters such as desired power, desired voltage or desired current nominal values, to provide electrical configuration information, to provide switching signals, and/or to signals to override the automatic operating aspects of the control logic 64 (Paragraph 0075)..

With respect to claim 5, Fisher teach that the control system **20** "controller" may verify when an appropriate operational cartridge temperature has been reached, utilizing temperature sensor **62** (Paragraphs 0067-0068)

4.. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pearson (U.S. Pub. No. 2004/0126635 A1) in view of Fisher et al. (U.S. Pub No. 2003/0175566

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A1).as applied to claim 1 above and further in view of Fuglevand (U.S. Patent No. 6,497,974 B2).

With respect to claim 3, Pearson as modified by Fisher et al. discloses an electric power plant with adjustable array of fuel cell systems in paragraph 2 above. Pearson do not specifically teach the first fuel cell or the second fuel cell comprising solid oxide fuel cells. However, Fuglevand discloses a fuel cell power system wherein a fuel cell power system comprising an ultracapacitor electrically coupled to a load and which is charged and discharged to different voltages; a plurality of fuel cell subsystems electrically coupled together in series, and which produce direct current electrical energy; a switch electrically coupled with the plurality of fuel cell subsystems to selectively electrically couple the plurality of fuel cell subsystems to the ultracapacitor; and control circuitry which causes the switch to electrically couple the fuel cell to the ultracapacitor in response to the voltage of the ultracapacitor being less than a first predetermined voltage (Col 4 lines 6-21). Fuglevand further teaches that the fuel cell power system comprises a fuel cell selected from the group consisting of proton exchange membrane, solid oxide, phosphoric acid, alkaline, and molten carbonate (Col 15 lines 14-18). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the solid oxide fuel cell of Fuglevand into the fuel cell system of Pearson as modified by Fisher et al. because Fuglevand further teaches that the fuel cell power system comprises a fuel cell selected from the group consisting of proton exchange membrane, solid oxide, phosphoric acid, alkaline, and molten carbonate (Col 15 lines 14-18).

***Response to Arguments***

5. Applicant's arguments filed on August 17<sup>th</sup>, 2006 have been fully considered but they are not persuasive.

*Applicant's principle arguments are*

*(a) Applicant submits that the Pearson reference and the Fisher reference provide insufficient evidence to teach or suggest a system that includes a temperature circuit that provides a signal to a parallel/series switch to thereby adjust electrical output efficiency and heat production of fuel cells.*

In response to Applicant's arguments, please consider the following comments.

(a) Pearson does not specifically teach a temperature measurement circuit.

However, Fisher et al discloses fuel cell power systems and methods of operating fuel cell power systems (title) wherein, the depicted fuel cell power system **10** includes a fuel delivery system **40**. Fuel delivery system **40** couples with a fuel supply **42** to supply fuel to fuel cell cartridges **14** (Paragraph 0047). Fisher et al teach also teach that following a start-up condition either inputted via interface, the control system **20** electively controls the switching device **32** to couple power bus **88** with positive terminal **90**. The switching device **32** can comprise parallel MOSFET switches to selectively couple positive and negative terminals **90** and **92** to the cartridges **14**. For example, the control system **20**

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may verify when an appropriate operational cartridge temperature has been reached, utilizing temperature sensor **62** (Paragraphs 0067-0068). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the temperature sensor of Fisher et al into the fuel cell system of Pearson because Fisher et al teach that the control system **20** may verify when an appropriate operational cartridge temperature has been reached, utilizing temperature sensor **62** (Paragraphs 0067-0068).

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben Lewis whose telephone number is 571-272-6481.

The examiner can normally be reached on 8:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ben Lewis

Patent Examiner  
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